Summary

Phase contrast X-ray device for creating a phase contrast image of an object and m thod for creating the phase contrast image

The invention concerns a phase contrast X-ray device (1) for creating a phase contrast image of at least one object (4) with at least one X-ray source (2) for generating an X-radiation that has a specific spatial coherence (14) within a specific optical distance (6) to the X-ray source and at least one evaluation unit (16) for converting the X-radiation after the X-radiation has passed through the object arranged within the optical distance to the X-ray source in the phase contrast image of the object. The phase contrast X-ray device is characterized in that the X-ray source has an output ranging from 50 W up to and including 10 kW and a spatial coherence length of the X-radiation has been selected within the optical distance to the X-ray source ranging from 0,05 µm. This is obtained by using an X-ray source with line-shaped focus (7) and/or by monochromating the X-radiation by using a gradient multilayer reflector (20). With monochromating, the X-radiation has a temporal coherence (15) suitable for recording the phase contrast image of a thicker object. The X-ray device is suitable for use in medical technology and the non-destructive material testing.